

What is claimed is:

1. A suction head of a vacuum cleaner with a power brush, comprising:

5 a head case connected with a cleaner body by a connecting tube having a suction hole on a lower surface;

a power brush positioned in the head case and protruded toward the outside of the head case through the suction hole thus to be abutted to a cleaning object;

10 a supporting means fixed in the head case, for supporting the power brush to be capable of performing rotary and linear movements;

a rotary operating means installed between the supporting means and power brush in the power brush, for rotary operating the power brush; and

15 a linear operating means installed between the supporting means and power brush in the power brush, for moving the power brush linearly.

2. The suction head of claim 1, wherein the power brush is formed in the cylindrical shape and a brush is abutted to the cleaning object on the outer circumferential surface.

20 3. The suction head of claim 2, wherein the brush is arranged in a spiral shape on the circumferential surface of the power brush.

4. The suction head of claim 1, wherein the supporting means
25 comprises:

a supporting shaft having both ends fixed on the inner wall of the head case under the condition that the supporting means protrudes the power brush;

a linear moving guide means positioned between the supporting shaft and the power brush, for guiding the power brush to move linearly along the supporting shaft; and

a bearing installed between the linear moving guiding means and the power brush, for rotating the power brush.

5. The suction head of claim 4, wherein the linear moving guide means is a guide bush fixed with the supporting shaft due to having a cylindrical shape and combined with an inner race of the bearing in the serration structure to mutually lock each other in the rotary direction.

6. The suction head of claim 5, wherein the guide bush has a stopper for restrict linear movement of the power brush at the both end portions.

7. The suction head of claim 5, wherein the guide bush has a hole where an electric cable passes so that a power source can be supplied to the rotary operating means and the linear operating means.

8. The suction head of claim 1, wherein the rotary operating means is a rotary type motor comprising a stator fixed to the supporting means and a rotor fixed on the inner circumferential surface of the power brush.

9. The suction head of claim 1, wherein the linear operating means

comprises:

a solenoid coil fixed to the supporting means, for generating flux;

a moving core fixed to the inner circumferential surface of the power brush,
for generating a linear moving force by the flux generated by the solenoid coil; and

5 an elastic means supported in the head case, for generating an opposed
force to a force generated between the solenoid coil and the moving core.

10 10. The suction head of claim 9, wherein the elastic means is installed
between the both side surfaces of the power brush and the both inner wall
surfaces of the head case respectively and provides an elastic force so that the
power brush performs linear fluctuating movement in the longitudinal direction.

11. A suction head of a vacuum cleaner with a power brush,
comprising:

15 a head case connected with a cleaner body by a connecting tube having a
suction hole on a lower surface;

a power brush positioned in the head case and protruded toward the
outside of the head case through the suction hole thus to be abutted to a cleaning
object;

20 a supporting means fixed in the head case, for supporting the power brush
to be capable of performing a rotary movement; and

a rotary operating means installed between the supporting means and
power brush in the power brush, for rotary operating the power brush.

25 12. The suction head of claim 11, wherein the rotary operating means

is a rotary type motor comprising a stator fixed to the supporting means and a rotor fixed on the inner circumferential surface of the power brush.

13. A suction head of a vacuum cleaner with a power brush,
5 comprising:

a head case connected with a cleaner body by a connecting tube having a suction hole on a lower surface;

a power brush positioned in the head case and protruded toward the outside of the head case through the suction hole thus to be abutted to a cleaning object;

a supporting means fixed in the head case, for supporting the power brush to be capable of performing linear movements; and

a linear operating means installed between the supporting means and power brush in the power brush, for moving the power brush linearly.

14. The suction head of claim 13, wherein the linear operating means comprises:

a solenoid coil fixed to the supporting means, for generating flux;

a moving core fixed to the inner circumferential surface of the power brush,
20 for generating a linear moving force by the flux generated by the solenoid coil; and

an elastic means supported in the head case, for providing an elastic force so that the power brush performs linear fluctuating movement in the longitudinal direction.